

CLAIMS

1. A head support device of self-balancing type having a rotation axis about which a head support arm is rotatable in a radial direction of a recording medium, said head support device being rotatable in a direction
5 perpendicular to the recording medium about a line substantially perpendicular to the rotation axis and a center line, said head support device of self-balancing type comprising:

the head support arm including

an arm having one end and another end, the arm
10 having a tab at the one end thereof and having a hole formed therein at the another end thereof, the arm further having pivots positioning the hole between the pivots, and

a spring having a cramp and an elastic force generator
portion provided at an end of the spring, the end of the spring being
15 connected with the arm;

a bearing including a flange at one end thereof, a thread portion formed at another end thereof, and a cylinder portion provided between the flange and the thread portion;

a head slider provided at the one end of the arm, the head slider
20 being arranged to have a head fixed thereto via a gimbal mechanism;

a voice coil holder fixed to the head support arm, the voice coil holder having a voice coil provided at the voice coil holder, the voice coil rotating the head support arm in the radial direction of the recording medium about the rotation axis;

25 a reinforcing plate having a shape substantially identical to a shape of the cramp, the reinforcing plate being fixed to a predetermined position of the cramp at a side opposite to a projecting direction of the pivots;

a collar fitting the cylinder portion and contacting the reinforcing plate; and

a nut fitting the thread portion,

wherein the flange and the nut sandwich and cramp the head support arm having the reinforcing plate fixed thereto,

wherein the head support arm is supported rotatably about a line provided between contact points at which the pivots contact the flange and in a direction perpendicular to the recording medium, and

wherein the spring as an elastic member generates an urging force toward the recording medium and is provided unitarily with the head support arm.

2. The head support device as defined in claim 1, further comprising bent portions at both sides of the arm at a side to the tab.

3. The head support device as defined in claim 2, wherein a portion of the voice coil holder at an end opposite to a side at which the voice coil is provided is fixed to the head support arm overlapping portions of the bent portions along a direction of the rotation axis center.

4. The head support device as defined in claim 1,

wherein the cramp and the reinforcing plate have substantially half-annular shape, and

wherein, in a direction perpendicular to a longitudinal direction of the head support arm, an end of the reinforcing plate has a width larger than a width of the cramp coupled with the elastic force generator portion.

5. The head support device as defined in claim 1,

wherein the collar has a collar projection having a shape substantially identical to a shape of the reinforcing plate, and

wherein the collar projection presses the reinforcing plate to
5 cramp the head support arm.

6. The head support device as defined in claim 5, wherein a distance from an end of the collar projection closer to the rotation axis center, to a diameter line of the rotation axis perpendicular to a center line in a
10 longitudinal direction of the head support arm is smaller than a distance from an end of the reinforcing plate closer to the rotation axis, to the diameter line of the rotation axis.

7. The head support device as defined in claim 1, wherein a thickness of
15 the reinforcing plate is larger than a projection height of each of the pivots.

8. The head support device as defined in claim 5, wherein the collar has an annular shape having both end surfaces which are perpendicular to an axis center of the collar and are parallel with each other.
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9. The head support device as defined in claim 1, wherein the reinforcing plate has a projection on a side of an outer shape thereof.

10. The head support device as defined in claim 9, wherein the
25 projection of the reinforcing plate is provided on a side of the reinforcing plate facing the rotation axis, and projects in a longitudinal direction of the head support arm while the projection is fixed to the head support arm.

11. The head support device as defined in claim 9, wherein the reinforcing plate has a tolerance on a side facing the rotation axis, and the projection of the reinforcing plate is provided on a side of the tolerance.

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12. A disk device comprising:

a recording medium rotating with a spindle motor; and

a head support device of self-balancing type having a rotation axis about which a head support arm is rotatable in a radial direction of a recording medium, the head support device being rotatable in a direction perpendicular to the recording medium about a line substantially perpendicular to the rotation axis and a center line, said head support device of self-balancing type,

wherein the head support device of self-balancing type comprises:

15 a head support arm including

an arm having one end and another end, the arm having a tab at the one end thereof and having a hole formed therein at the another end thereof, the arm further having pivots positioning the hole between the pivots, and

20 a spring having a cramp and an elastic force generator portion provided at an end of the spring, the end of the spring being connected with the arm;

a bearing including a flange at one end thereof, a thread portion formed at another end thereof, and a cylinder portion provided between the flange and the thread portion;

25 a head slider provided at the one end of the arm, the head slider being arranged to have a head fixed thereto via a gimbal

mechanism;

a voice coil holder fixed to the head support arm, the voice coil holder having a voice coil provided at the voice coil holder, the voice coil rotating the head support arm in the radial direction of the recording medium about the rotation axis;

a reinforcing plate having a shape substantially identical to a shape of the cramp, the reinforcing plate being fixed to a predetermined position of the cramp at a side opposite to a projecting direction of the pivots;

a collar fitting the cylinder portion and contacting the reinforcing plate; and

a nut fitting the thread portion,

wherein the flange and the nut sandwich and cramp the head support arm having the reinforcing plate fixed thereto,

wherein the head support arm is supported rotatably about a line provided between contact points at which the pivots contact the flange and in a direction perpendicular to the recording medium, and

wherein the spring as an elastic member generates an urging force toward the recording medium and is provided unitarily with the head support arm.